

Sharp

THE
UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

AND

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

AND

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION
NORTH DAKOTA STATE UNIVERSITY
FARGO, NORTH DAKOTA

ANNOUNCE

THE RELEASE OF ND-WWG931 AND ND-WWG932 WESTERN WHEATGRASS

ND-WWG931 and ND-WWG932 western wheatgrass [*Pascopyrum smithii* (Rydb.) Love], have been developed and evaluated for breeding and experimental purposes by USDA-ARS, Mandan, ND. These germplasms represent a sample of genotypes from two distinct environments in the northern Great Plains. ND-WWG931 was derived from a collection that was made cooperatively by USDA-SCS and USDA-ARS in the western halves of North and South Dakota. ND-WWG932 was derived from a collection made by Agriculture Canada in Alberta and Saskatchewan, Canada. ND-WWG931 and ND-WWG932 are being jointly released by USDA-ARS, USDA-SCS, and the North Dakota Agricultural Experiment Station.

The base population of ND-WWG931 consisted of 5140 genotypes that were vegetatively collected from 1028 sites in western North and South Dakota. Genotypes were replicated twice using clonal ramets and transplanted on 1.8-m centers in a space-plant nursery near Mandan, ND. This material was then subjected to two cycles of phenotypic recurrent selection for plant vigor, rhizomatous spread, density of foliage cover, and seed yield. Each selected genotype from the base population was represented by five half-sib progeny in the cycle 1 population. One progeny per half-sib family was transplanted on 1.8-m centers in each of 5 replicates in a randomized complete block design. Selection intensities were 8 and 20% (i.e. 400 plants) in Cycles 0 and 1, respectively. Selected genotypes of Cycle 1 were intermated, and five grams of Cycle 2 seed were bulked from each parent plant to constitute ND-WWG931.

The base population for ND-WWG932 consisted of 468 half-sib families that were derived from open-pollinated seed collected from western wheatgrass genotypes growing on rangeland sites in Alberta and Saskatchewan, Canada. Each family was represented by 10 half-sib progeny. Five progeny per half-sib family were transplanted on 1.8-m centers in each of two replicates in a space-plant nursery near Mandan, ND. From the base population of 4680




plants, 234 genotypes were selected (5% selection intensity) and subjected to one cycle of phenotypic selection for plant vigor, rhizomatous spread, and density of foliage cover. Selected genotypes of Cycle 0 were intermated, and five grams of Cycle 1 seed were bulked from each parent plant to constitute ND-WWG932.

ND-WWG931 and ND-WWG932 were evaluated simultaneously for various agronomic traits in 1990. ND-WWG931 averaged four days later in anthesis date and was 9.5% higher in rhizomatous spread than ND-WWG932. Average scores for density of foliage cover and plant vigor were equal for the two germplasms and were similar to the cultivar 'Walsh'.

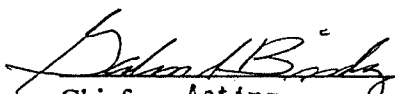
Approximately 270 half-sib families of ND-WWG931 were further characterized over two growing seasons at Mandan, ND for forage yield and seed head production. Forage production of ND-WWG931 was equivalent to that of the cultivars 'Flintlock' and 'Walsh' but was less than that of 'Barton', 'Rodan', and 'Rosana'. Seed head production of ND-WWG931 was equivalent to that of Walsh but was less than that of Barton, Flintlock, Rodan, and Rosana.

Seed of ND-WWG931 and ND-WWG932 will be produced and maintained at the USDA-ARS Northern Great Plains Research Laboratory, Mandan, ND 58554. Limited quantities of each germplasm are available to each applicant upon written request. Request seed from I. M. Ray, Northern Great Plains Research Laboratory, P.O. Box 459, Mandan, ND 58554. When this germplasm contributes to a new cultivar, it is requested that appropriate recognition be given to its source.

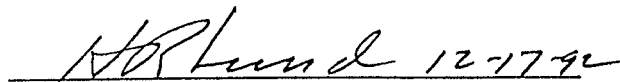
Release date for publicity purposes shall be effective on the date of final signature of the release notice.



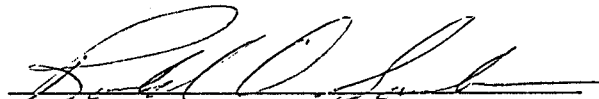
1/15/93
Administrator Date
United States Department of Agriculture
Agricultural Research Service
Washington, DC




1/12/93
Chief Acting Date
United States Department of Agriculture
Soil Conservation Service
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12-17-92
Dean and Director Date
North Dakota Agricultural
Experiment Station
Fargo, ND



State Conservationist ACTING Date
United States Department of Agriculture
Soil Conservation Service
Bismarck, ND



1/13/93
State Conservationist Date
United States Department of Agriculture
Soil Conservation Service
Huron, SD